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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
HANSULRICH REISACHER, ET AL : GROUP: 1793  
SERIAL NO: 10/531,586 :  
FILED: APRIL 18, 2005 : EXAMINER: ABU ALI, S.

FOR:

SOLID PIGMENT PREPARATION CONTAINING WATER-SOLUBLE ANIONIC  
SURFACE-ACTIVE ADDITIVES THAT COMPRISE CARBOXYLATE GROUPS

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

REPLY BRIEF

This Reply Brief is timely filed by June 29, 2010, with no extension of time. This Reply Brief responds to erroneous findings and conclusions throughout the Examiner's Answer dated April 29, 2010 (Ans.).

STATUS OF CLAIMS

Claims 7-9 and 11-16 are pending in the application.

Claims 1-6 and 10 have been canceled.

Claims 7-9 and 11-16 are finally rejected.

Claims 7-9 and 11-16 are appealed.

The final rejections of Claims 7-9 and 11-16 are herein appealed.

STATUS OF AMENDMENTS

No amendments to Claims 7-9 and 11-16 have been filed subsequent to the final Office Action of November 20, 2008.

GROUND S OF REJECTION TO BE REVIEWED ON APPEAL

(1) The solid pigment preparations and production processes of Claims 7, 11, 13, and 15 stand rejected under 35 USC 103 as obvious over Takahashi (U. S. Patent 4,234,466, issued November 18, 1980).

(2) The solid pigment preparation of dependent Claim 8 stands rejected under 35 USC 103(a) as obvious over Takahashi.

(3) The solid pigment preparation of dependent Claim 9 stands rejected under 35 USC 103 as obvious over Takahashi in view of Sommer (U. S. Patent 5,112,404, issued May 12, 1992).

(4) The process for producing the pigment preparations of Claims 12 and 14 stand rejected under 35 USC 103 as obvious over Takahashi.

(5) The solid pigment preparation of independent Claim 16 stands rejected under 35 USC 103 as obvious over Takahashi.

ARGUMENT

Claims 8, 9, 12 and 16 are argued separately from independent solid pigment preparation Claim 7 “comprising” 60-95 wt.% of pigment (A), 5-40 wt.% of water-soluble additive (B), and 0-20 wt.% of additive (C).

Claim 8 depends from Claim 7 and includes specific particle size and surface area limitations not disclosed or suggested in Takahashi.

Claim 9 depends from Claim 7 and requires 60-85 wt.% of pigment (A), 5-20 wt.% of water-soluble additive (B), and 5-15 wt.% of additive (C).

Dependent Claim 12 is directed to a specific process for preparing the solid pigment preparation of independent Claim 7 not disclosed or suggested in Takahashi.

Independent Claim 16 is directed to solid pigment preparation “consisting essentially of” 60-95 wt.% of pigment (A), 5-40 wt.% of water-soluble additive (B), and 0-20 wt.% of additive (C).

1. The Examiner erred in interpreting the scope and content of Claims 7 and 16

Claim 7 is directed to a solid pigment preparation comprising (A) from 60 % to 95 % by weight of pigment, (B) from 5 % to 40 % by weight of a water-soluble anionic surface-active material selected from the group consisting of homo- and copolymers of ethylenically unsaturated monocarboxylic acids and/or ethylenically unsaturated dicarboxylic acids and salts thereof; and (C) from 0 % to 20 % by weight of at least one nonionic surface-active additive based on polyethers.

Independent Claim 16 is directed to a solid pigment preparation consisting essentially of (A) from 60 % to 95 % by weight of pigment, (B) from 5 % to 40 % by weight of a water-soluble anionic surface-active additive selected from the group consisting of homo- and copolymers of ethylenically unsaturated monocarboxylic acids and/or ethylenically unsaturated dicarboxylic acids and salts thereof, and (C) from 0 % to 20 % by weight of at least one nonionic surface-active additive based on polyethers.

While the Examiner Answer acknowledges that component (B) in the solid pigment preparations of both independent Claims 7 and 16 is a water-soluble anionic material selected from the group consisting of homo- and copolymers of ethylenically unsaturated monocarboxylic acids and/or ethylenically unsaturated dicarboxylic acids, the Examiner appears to erroneously conclude that (1) the water-soluble anionic materials of both Claims 7

and 16 are both open to the addition of resinous materials which, when combined with the water-soluble anionic materials, make them water-insoluble; and (2) the water-soluble anionic materials selected from the groups consisting of homo- and copolymers of ethylenically unsaturated monocarboxylic acids and/or ethylenically unsaturated dicarboxylic acids of both Claims 7 and 16 are open to polymerized ethylenically unsaturated monocarboxylic acids and/or ethylenically unsaturated dicarboxylic acids with comonomers which make the water-soluble anionic material water-insoluble.

First, the water-soluble anionic materials cannot reasonably be interpreted to be selected from homo- and copolymers made from ethylenically unsaturated mono- and/or dicarboxylic acids polymerized with comonomers which make the water-soluble anionic material water-insoluble. That overly broad interpretation is entirely inconsistent with the teaching in the present Specification and thus erroneous.

Second, persons having ordinary skill in the art reading Applicant's Specification reasonably would not have considered Applicant's water-soluble anionic material to be open to the addition of water insoluble resinous materials in amounts which convert the water-soluble anionic material into a water-insoluble resinous material. Again, that overly broad interpretation is inconsistent with the teaching in the supporting Specification and thus erroneous.

To make absolutely certain that persons having ordinary skill in the art would not have misinterpreted Applicant's claimed solid pigment preparations to be open to additional resinous materials and/or comonomers which would convert the water-soluble anionic surface-active additive required in Applicant's claimed solid pigment preparations into water-insoluble anionic materials in a manner inconsistent with the present Specification's teaching, Applicant closed Claim 16 to added resinous materials and comonomers which convert the water-soluble anionic materials required in Applicant's claimed solid pigment preparations

into water-insoluble anionic materials by use of the transitional phrase “consisting essentially of” (Claims Appendix, Claim 16). The transitional phrase “consisting essentially of” language means that the claim covers products including the listed elements, as well as unlisted elements, so long as the unlisted elements “do not materially affect the novel and basic properties of the invention.” *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1239 (Fed. Cir. 2003); *In re Herz*, 537 F.2d 549, 551-52 (CCPA 1976).

To the contrary, and entirely inconsistent with Applicant’s supporting Specification, the Examiner appears to conclude that both the solid pigment preparations of Claim 7 “comprising” (B) a water-soluble anionic surface-active homo- and/or copolymeric additive and of Claim 16 “consisting essentially of” (B) a water-soluble anionic surface-active homo- and/or copolymeric additive may include resinous materials and/or comonomers which convert the requisite water-soluble anionic surface-active additive (B) into a water-insoluble anionic surface-active additive (B). It is that erroneous interpretation of the scope and content of Applicant’s claimed solid pigment preparation which supports the Examiner’s rejection of Applicant’s claims over Takahashi’s teaching of an aqueous pigment dispersion comprising 1-70 wt.% of a pigment (Takahashi, col. 4, ll. 9-15) and a mixture comprising 3-60 wt.% of a resin (Takahashi, col. 3, ll. 25-55) dissolved in 27-96 wt.% of an ethylenically unsaturated monomer composition (Takahashi, col. 2, 38, to col. 3, l. 24) which is free-radically polymerized (Takahash, col. 4, l. 56, to col. 5, l. 6) to produce an aqueous dispersion of solid pigment-containing material which is filtered from water, washed with water, and dried to form a solid pigment preparation (Takahashi, col. 5, ll. 26-68; Examples 1-8).

2. The Examiner erred in rejecting Claims 7, 11, 13, and 15 over Takahashi

Claims 7 and 16 are directed to a solid pigment preparations “comprising” (Claims Appendix, Claim 7) and “consisting essentially of” (Claims Appendix, Claim 16), pigment (A) and at least one water-soluble anionic surface-active additive (B). Optionally, at least

one non-ionic surface-active polyether (C) can be present in the composition. The Examiner erred in finding that Takahashi either inherently discloses, and/or reasonably suggests, a solid pigment preparation comprising a water-soluble anionic surface-active additive to a person having ordinary skill in the art.

The Examiner clearly erred in finding that “additives selected from the group consisting of homo- and copolymers of ethylenically unsaturated monocarboxylic acids and/or ethylenically unsaturated dicarboxylic acids” and salts thereof must necessarily be water-soluble anionic surface-active additives (Ans., p. 6, 1<sup>st</sup> ¶). Persons having ordinary skill in the art would have understood from Takahashi’s disclosure that Takahashi dissolves 3-60 wt.% of at least one of a variety of resinous materials listed (Takahashi, col. 3, ll. 25-55) into 27-96 wt.% of a polymerizable ethylenically unsaturated monomer composition selected from (1) monovinyllic aromatic hydrocarbons; (2) ethylenically unsaturated carboxylic acid esters; (3) acrylonitriles; (4) glycidyl vinyl compounds; (5) ethylenically unsaturated compounds having hydroxyl groups; (6) ethylenically unsaturated carboxylic acids; (7) ethylenically unsaturated amines; (8) ethylenically unsaturated compounds having blocked isocyanate groups; (9) vinylacetates, etc. (Takahashi, col. 2, l. 38, to col. 3, ll. 24). However, the 3-60 wt.% resinous material component (Takahashi, col. 3, ll. 25-55) does not appear to be a water-soluble anionic surface-active homo- and/or copolymer, and each and every one of Takahashi’s examples show that the polymerization product of the resinous material dissolved in the ethylenically unsaturated monomer composition also is NOT a water-soluble anionic surface-active homo- or copolymer.

The Examiner essentially finds that homo- and copolymers having the same structure must necessarily be water-soluble (Ans., p. 6, 1<sup>st</sup> ¶). The Examiner finds that homo- and/or copolymers of ethylenically unsaturated mono- and dicarboxylic acids having the same

apparent structure are water-soluble absent all the evidence in Takahashi to the contrary (Ans., p. 6, ¶¶ 1-2).

First, no resinous material Takahashi contemplates dissolving in an ethylenically unsaturated monomer composition prior to polymerization appears to be an anionic water-soluble surface active resin..

Second, Takahashi nowhere suggests that the polymerized product of the resinous material dissolved in its ethylenically unsaturated monomer composition is a water-soluble homo- or copolymer of an ethylenically unsaturated mono- or dicarboxylic acid. Takahashi teaches that its polymerized solid aqueous dispersions are filtered, washed with water and dried (Takahashi, col. 5, ll. 26-32). “[T]he dispersed phase is collected by filtration, washed with water and dried to give a solid pigment . . .” (Takahashi, col. 8, ll. 34-36; col. 9, ll. 4-5; col. 9, ll. 42-44; col. 10, ll. 7-9; col. 10, ll. 41-42; and col. 11, ll. 6-7).

Moreover, Takahashi suggests that its resinous materials are likely to react with ethylenically unsaturated monomers having functional groups both prior to and during polymerization. Takahashi expressly states (Takahashi, col. 5, ll. 60-68; emphasis added):

[C]are should be taken in regulating the temperature to block side reactions such as the reaction between the functional groups in the resin and the ethylenically unsaturated polymerizable compound. The prevention of the side reactions may be also achieved by the addition of any reaction preventing agent such as a chain transfer agent. The selection and use of the starting materials which do not substantially cause any side reactions are, of course, favorable.

Accordingly, Takahashi suggests that ethylenically unsaturated mono- and dicarboxylic acid monomers are to be avoided because of their functional groups, or if used, recommends the addition of chain transfer agents such as a mercaptan, a disulfide, or a halide (Takahashi, col. 4, ll. 61-68).

Thus, persons having ordinary skill in the art would have doubted that Takahashi's product is (1) a water-soluble anionic surface-active additive, and (2) a water-soluble anionic surface-active additive selected from the group consisting of homo- and copolymers of

ethylenically unsaturated mono- and dicarboxylic acids. The Examiner clearly erred in finding that Takahashi's solid pigment preparation comprises a water-soluble anionic surface-active homo- or copolymer and clearly erred in finding that Takahashi's solid pigment preparation comprises a water-soluble homo- or copolymer of an ethylenically unsaturated mono- or dicarboxylic acid.

The Board should take particular notice of the fact that the polymerizable ethylenically unsaturated monomer compositions Takahashi employs in all of its examples comprise no more than 10 % methacrylic acid and no less than 90 % of a variety of other monomers selected from methacrylate esters, styrene, and acrylate esters (Takahashi, cols. 8-12, Examples 1-7). It is not surprising that persons having ordinary skill in the art reasonably would not have expected Takahashi's solid pigment compositions to "comprise" water-soluble anionic surface-active polymers. It is not surprising that persons having ordinary skill in the art reasonably would not have expected Takahashi's solid pigment compositions to "comprise" water-soluble anionic surface-active additives selected from the group consisting of homo- and copolymers of ethylenically unsaturated mono- and dicarboxylic acids and salts thereof. It is even less surprising that persons having ordinary skill in the art reasonably would not have expected Takahashi's solid pigment compositions to "consist essentially of" a pigment and a water-soluble anionic surface-active additive selected from the group consisting of homo- and copolymers of ethylenically unsaturated mono- and dicarboxylic acids and salts thereof.

The Examiner has yet to explain how the solid material Takahashi obtains after polymerizing its combination of pigment, resin, and ethylenically unsaturated compound(s) in water can be filtered to separate the wet polymer containing mass from the bulk of the water in the reaction medium, washed with water, and dried if Takahashi's polymerized solid pigment product may be presumed to be water-soluble. After Takahashi's wet polymerized



mass is separated from the aqueous medium by filtering, it is washed with water and then dried. See Takahashi's Examples 1-7. The Examiner's stories explaining why water-soluble materials might not be washed away from the mass are interesting, but they are not supported by any teaching or suggestion found in Takahashi.

3. The Examiner erred in rejecting Claim 8 over Takahashi

Takahashi does not disclose a solid pigment dispersion preparation in the form of granules having an average particle size ranging from 50 to 5000  $\mu\text{m}$  and a BET surface area of  $\leq 15 \text{ m}^2/\text{g}$  as Claim 8 requires. The Examiner argues that "the surface area of a particle is the function of the size and shape of the particle" (Ans., p. 7, 1<sup>st</sup> ¶). However, the Examiner has not explained how Takahashi's teaching of product "beads of 0.1 to 0.5 mm in particle size" at column 8, lines 36-37, would have led persons having ordinary skill in the art to make and use the granules of appealed Claim 8 with an average particle size of 50 to 5000  $\mu\text{m}$  and a surface area of  $\leq 15 \text{ m}^2/\text{g}$  when  $0.1\text{-}0.5 \text{ mm} = 100000\text{-}500000 \mu\text{m}$ .

4. The Examiner erred in rejecting Claim 9 over Takahashi in view of Sommer

Takahashi does not suggest the solid pigment preparation required by Claim 9 comprising 60 to 85 wt.% of pigment (A), 5 to 20 wt.% of water-soluble additive (B), and from 5 to 15 wt.% of non-ionic surface-active polyether additive (C). The Examiner relies on Sommer's disclosure of a pigment formulation comprising a pigment, a melamine compound having formula I, and optionally, any kind of surface-active agent. Sommer's melamine formula I compound is added to disperse the pigments in paints, inks, and plastics (Sommer, col. 1, ll. 15-51). Sommer's formula I compound is added to prevent pigment agglomeration and thus reduce the viscosity of the pigment formulation.

On the other hand, Takahashi's pigments are dispersed in a resin dissolved in a polymerizable monomer. The critical ingredient in Sommer's composition is the melamine compound of formula I which is employed as the primary dispersing aid for its pigment.

Persons having ordinary skill in the art would not have been led by Sommer's teaching specifically to add a nonionic polyether surfactant to Takahashi's pigment composition which contains a resin. Persons having ordinary skill in the art would not have been led by Sommer's teaching specifically to add a nonionic surfactant to a pigment composition which does not contain a melamine of formula I. Persons having ordinary skill in the art would not have been led by Sommer's teaching specifically to add a nonionic surfactant to Takahashi's composition when Takahashi does not have an agglomeration problem.

5. The Examiner erred in rejecting Claims 12 and 14 over Takahashi

Claim 12 is directed to a process for producing pigment preparations by wet-comminuting pigment (A) in an aqueous suspension in the presence of some or all of polymer additive (B) and optionally (C), and then drying the suspension, optionally, after the remainder of additive (B) and optional additive (C) has been added. Takahashi does not reasonably suggest wet-comminuting a pigment in an aqueous suspension of a homo- or copolymer of ethylenically unsaturated mono- and/or dicarboxylic acid. Takahashi disperses its pigment in a resin dissolved in an ethylenically unsaturated monomer composition and then polymerizes the composition. Takahashi's process is completely different from the process of Claim 12. The Examiner's explanation (Ans, p. 4, 1<sup>st</sup> full ¶; p. 8, 1<sup>st</sup> full ¶) why Applicant's claimed process would have been obvious in view of the process Takahashi discloses is unsatisfactory. By Applicant's process, the pigment is dispersed in the pre-formed polymer. Takahashi instructs one skilled in the art to disperse the pigment in a monomer composition and then free-radically polymerize the composition. The Examiner's conclusion of obviousness is not supported by the process Takahashi teaches.

6. The Examiner erred in rejecting Claim 16 over Takahashi

The solid pigment preparation of Claim 16 is patentable over the products disclosed in Takahashi not only for the reasons stated with respect to Claim 7, but also because the

transitional phrase “consisting essentially of” utilized in Claim 16 excludes the 3-60 wt.% resin dissolved in Takahashi’s ethylenically unsaturated monomer composition prior to polymerization and thus excludes Takahashi’s polymerized product. The solid pigment preparation of Applicant’s Claim 16 “consists essentially of” 60-95 wt.% of pigment (A) and 5-40 wt.% of a water-soluble anionic surface-active additive selected from group consisting of homo- and copolymers of ethylenically unsaturated mono- and/or dicarboxylic acids. Nevertheless, the Examiner argues (Ans., p. 5, 1<sup>st</sup> ¶; p. 9, 1<sup>st</sup> ¶) that there is no showing of record that Applicant’s claims pigment preparation necessarily would be changed by the presence of Takahashi’s resin component.

To the contrary, Takahashi teaches that its solid polymerized composition is an aqueous dispersion which is filtered, washed with water, and dried. Applicant’s solid pigment preparation consists essentially of pigment (A) and a water-soluble anionic surface-active additive (B) selected from the group consisting of homo- and copolymers of mono- and dicarboxylic acids. The matrix of Applicant’s claimed pigment preparation without added resin is water-soluble. The matrix of Takahashi’s pigment formulation with added resin is NOT water-soluble. The Examiner’s conclusion of obviousness is erroneous.

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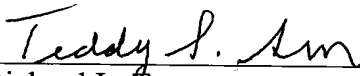
For all the reasons stated herein, the Examiner's final rejections of Applicant's claims on appeal are erroneous and should be REVERSED.

Respectfully submitted,

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